Reports

Reports are the main method of disseminating the results of your research project.

Interim reports may be required to report on your progress. The final report may be a technical report that provides technical findings to a non-technical audience or to a technical recipient that assumes shared technical knowledge of both sender and receiver.

An academic or business report normally ends in conclusions and recommendations designed for a broad audience.

An oral report may be required or recommended for your research project.
Interim Reports

Interim reports may be required for your research project. An interim report will normally contain:

- Introduction – nature of project, purpose, overall objective, dates of project, team members
- Summary of current status – where you are in the overall project, (point in workplan, time, deliverables)
- Workplan deliverables – completed deliverables, those in progress, those delayed, those remaining
- Problems/delays and strategies to overcome them
- Next steps
Technical Reports

**Technical Writing:** Is a form of technical communication and is used in areas such as:

- Computer hardware and software
- Chemistry
- Aerospace
- Robotics
- Finance
- Electronics
- Biotechnology
If you are involved in an applied research project in any of these fields, you may be responsible for writing findings from the research project, and must be able to communicate technical ideas to a non-technical audience.

The goal is to deliver a technical or complex thought or finding to the general population. Technical writers often gather information from Subject Matter Experts (SME) and are responsible for using strong language and communication skills and their understanding of complex ideas to effectively communicate technical findings to a broad audience.
Technical Writing:

As a research assistant, you may also be asked to read technical reports.

Technical documents are written materials that are only useful if the information does not have to be further decoded by the reader. It must be clear and easy to understand, while still delivering a technical message or providing the reader with a better understanding of a technical idea. When a technical report is effective, it clarifies terms and technical jargon for the reader so it is clear and easy to understand. A poorly written technical report overuses technical jargon and creates confusion and lack of clarity for those reading the report.
Technical Writing:

If you are writing a technical report you must have a firm understanding of who your target audience is, in order to deliver a clear message to meet their needs.

**Audience Analysis**

- Who, how many, similar or different?
- Level of knowledge/experience with the topic?
- Bias?
The Research Report

The organization of Research Reports

As a research assistant, it is important that you have an understanding of how research reports are created, so that you can be effective while reading and summarizing reports, looking for specific information from a study, or writing a report. A very common method of organizing a research report is the **IMRAD format**, which divides the report into 4 sections.

**IMRAD** stands for *Introduction, Methods, Results, and Discussions*. This is a standard format of how research reports are laid out in most quantitative (and many qualitative) studies.
Overview of Report Components

Major sections of the report are similar to the sections of the proposal.

<table>
<thead>
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<th>Heading</th>
<th>Proposal</th>
<th>Final Report</th>
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<td>Title Page</td>
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<td>Abstract/Executive Summary</td>
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<td>Introduction</td>
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<td>Hypothesis/Research Questions</td>
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<td>Recommendations</td>
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<td>References</td>
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<td>Appendices</td>
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The Abstract/Executive Summary

The Abstract or Executive Summary

- Usually 100-200 words

Answers the following:

- What is the research question? What are the research questions?
- What methods were used? (when in the final report)
- What were the findings? (when in the final report)
Introduction

The Introduction

- Familiarizes the reader with the research problem(s) and the context of those problem(s)
- Describes the concepts or variables which are being studied
- Identifies the statement of purpose, research questions, and/or hypotheses
- Provides theoretical frameworks and underpinnings
- Provides the reader with the significance and need for that particular research project
Literature Review

A full bibliography should be included in the Appendices. However, the Literature Review section will outline:

- the literature review strategy
- key resources
- any difficulties, gaps, or unusual findings
- Follow-up recommendations
Methods

The Methods

- Identify the research design, sample group and rationale, measures for data collection and tools used
- Identify research procedures, and will include interventions, efforts to protect the rights of participants etc.
- Summarize methods used to analyze data
Results

The Results/Findings

- Re-state the research purpose and research questions or hypotheses
- Outline results for each of the questions/hypotheses
- For quantitative studies, this section will include the nature of the statistics gathered, the value and significance of the statistics
- Implications of the findings
- Refer to components of the appendices that document elements of the research (charts, data tables, etc.)
Discussion

The Discussion

- Attempts to identify the meaning of the findings
- Attempts to relate findings to broader issues of concern, and where possible to previous research
- Interprets the results
- Suggests implications of how this research can be used to advance knowledge, change a practice, etc.
- Identifies the study’s limitations such as sampling limitations, design problems etc.
- Indicates how the research may be used by an industry partner or other reader
Conclusions and Recommendations

Conclusions do not overstate, but should:

- Present concise concluding remarks on each research question or hypothesis
- Present concluding remarks about your interpretation of results
- Comment on further research required

Recommendations

- Link the present to the future
- Identify potential actions
- Identify benefits of actions
Using Visual Aids

Visual Aids are valuable in a report as they add variety to the text and can quickly relate data. The most common aids are:

- Tables – word or numerical
- Figures – pie graphs, bar graphs, line graphs (rule: one idea per figure)
- Diagrams and illustrations
- Photographs
A Comment on Grammar and Accuracy: Typical Errors

Lack of agreement of terms: This happens when the writer uses a singular noun and a plural verb (or vice versa) in a sentence. For example: The data is collected by a questionnaire needs to be written as: The data are collected by a questionnaire because data is a plural noun.

Lack of parallel structure:

Wrong parallel structure: John likes math, science and to write papers…

Correct parallel structure: John likes math, science and writing papers…
A Comment on Grammar and Accuracy: Typical Errors

**Long, complex sentences:** This is distracting and challenging to the reader. Consider dividing a long sentence into 2 shorter ones.

**Passive rather than Active voice:** A passive voice is when the doer of the action in the sentence is not the subject of the main verb e.g. *Health and safety procedures must be explained to each new research assistant during orientation week.* Using an active voice, you would write: *The supervisor must explain health and safety procedures to each new research assistant during orientation week.*

**Weak Pronouns and verbs:** The use of *This is… or There are… or That was…* are usually weak sentence constructions that can be strengthened by the more frequent use of nouns rather than pronouns.

**Long, complicated or inappropriate words:** Use short and simple words instead of jargon. For example, choose *use* instead of *utilize.* Using slang is always inappropriate.
**A Comment on Grammar and Accuracy: Typical Errors**

**Misused words:** Learn to distinguish words that sound the same but mean different things and to select the most accurate term to convey meaning correctly. Using these terms inappropriately will not convey meaning. Know when to use *it’s*…*its*; *there’s*…*theirs*; *led*…*lead*; *principle*…*principal*

**Biased language:** This happens when the writer inadvertently uses language that may offend the reader. Avoid the use of sexist language or language that might represent stereotypes.

**Unnecessary words:** Ensure that the sentence is crisp and easy to read. For example, why use *in order to* when *to* will do just fine? Or *are of the opinion that* instead of *believe*. Proof-read your work and look for instances where you can delete unnecessary words.

**Spelling, punctuation and capitalization:** When you proof-read your work, look for inconsistencies in punctuation and capitalization, and correct spelling errors.
Using another writer’s words, content, unique approach, or illustrations without crediting the author is called plagiarism and is illegal and unethical.

A **quotation** repeats a source’s exact words.

A **paraphrase** is a restatement of the quotation in your own words. A restatement requires that you completely rewrite the idea, not just remove or replace a few words.

In both instances, you must identify the source.
Unintentional Plagiarism often occurs accidentally during the writing process.

You may forget to include quotation marks, or you may intend to cite or paraphrase a source but don’t end up doing it for some reason.

To avoid this, write a note in your log book or journal (e.g. quotation from original, or paraphrase); cite author.

Even if unintentional, plagiarism is an offence.
Example: Original Excerpt

“The most common assumption that is made by persons who are communicating with one another is...that the other perceives, judges, thinks, and reasons the way he does. Identical twins communicate with ease. Persons from the same culture but with a different education, age, background, and experience often find communication difficult. American managers communicating with managers from other cultures experience greater difficulties in communication than with managers from their own cultures.”*

Plagiarism Examples

Example: Unacceptable Paraphrase of Excerpt

“When we communicate, we assume that the person to whom we are speaking perceives, judges, thinks, and reasons the way we do. This is not always the case. Although identical twins communicate with ease, persons from the same culture but with a different education, age, background, and experience often encounter communication problems. Communication problems are common among American managers as they attempt to communicate with Managers from other cultures. They experience greater communication problems than when they communicate with managers from their own culture.”

This example copies much of the language of the original. There are no quotation marks around the quoted words. There is no reference to the original source text. Quoting without using quotation marks or showing a reference is a very common and serious form of plagiarism.
Example: Unacceptable Paraphrase

“When we communicate, we assume that the person to whom we are speaking understands the issues just as we do. This is not always the case. Although identical twins communicate with ease, persons from the same culture but with a different education, age, background, and experience often encounter communication problems. Communication problems are common among American managers as they attempt to communicate with Managers from other cultures. They experience greater communication problems than when they communicate with managers from their own culture (Quitman Troyka, 1996, p.2).”

In this example, the writer added a reference. However, most of the text is copied word for word from the original without using quotation marks. Even with the reference, this is a form of plagiarism.
Example: Unacceptable Paraphrase

“When we communicate, we assume that the person to whom we are speaking understands the issues just as we do. This is not always the case. Although ‘identical twins communicate easily, persons from the same culture but with different educational background and experience’ encounter communication problems (Quitman Troyka, 1996, p. 2). Communication problems are common among American managers as they attempt to ‘communicate with Managers from other cultures’ (p.2). They experience greater communication problems than when they communicate with ‘managers from their own culture’ (p.2).”

This example was better, but not quite right:

The use of quotation marks and a reference prevent this example from being plagiarism. However, it is still not correct. Some of the words inside the quotation marks have been changed from the original. Quoted passages must be exactly the same as in the original. Any wording that is changed should not be in quotation marks. Also, there is no reason to quote these passages. They should be paraphrased.
Example: Acceptable Paraphrase of Excerpt

Many people fall into the trap of believing that everyone sees the world exactly as they do and that all people communicate according to the same assumptions. This belief is difficult to support even within our own culture as African Americans, Hispanic Americans, Asian Americans, and others often attempt unsuccessfully to find common ground. When intercultural differences are thrown into the mix, such as when managers from different cultural backgrounds communicate with each other, clear communication becomes even harder (Quitman Troyka, 1996).

Note that the reference is cited since it is the original idea from the author that has been paraphrased.

This example is correctly done. The paraphrase captures the meaning of the original words without relying on quotation. The reference is correctly given.
Authorship Criteria

Credit should be based on the following criteria:
1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data
2) drafting the article or revising it critically for intellectual content
3) final approval of the version to be published

Adapted from: International Committee of Medical Journal Editors. Ethical Considerations in the Conduct and Reporting of Research -- Authorship and Contributorship

(http://www.icmje.org/#author)
Effective Presentations

Another important component of the research process is to disseminate or share the research findings. This can be done through formal publication tools, including newsletters, presentations or posters that you may be involved in producing, in collaboration with the research project team.

In your role as a student researcher, you may be asked to prepare or assist in the preparation of poster or oral (panel/podium) presentations.
Effective Presentations

Posters are highly effective methods of presenting research results. They follow a standard template and can be stand-alones or presented verbally by the researcher. Posters also form the basis for powerpoint presentations. Components are:

- Title
- Authors, affiliations
- Introduction
- Research questions/hypotheses
- Methods
- Results
- Conclusions
- References
- Acknowledgements
Sensory and Aromatic Comparison of Wine in 3 Barrel Types

Principal Investigator: Terence Van Rooyen  
Project Partner: Dr. Jim Hedges, Canadian Oak

Introduction
The Sensory and Aromatic Comparison detailed here is currently being conducted at the Niagara College Teaching Winery. It began at the end of harvest in 2007. We put several distinct varietals of wine into one of each of the following barrel types: Canadian Oak, American Oak and French Oak. The varietals that we are using are Sauvignon Blanc, Cabernet Franc, Cabernet Sauvignon, Merlot, and Pinot Noir.

Aim
The goal of the Canadian Oak trial is to define the distinct characteristics of Canadian Oak and its use, including the flavour profiles and terroir inherent in this unique barrel style.

Only select wine regions can claim to having an entirely locally influenced product, and in terms of production, this also involves the aging of their wines in oak grown and coopered locally. The Niagara Region, for the first time, has a chance to become part of this group by using barrels produced from our own trees.

The use of Canadian oak is currently inhibited by the cost of the production of barrels, since the wood needs to be sent elsewhere for cooperage. By establishing a Canadian-based cooperage, we can eliminate these costs and facilitate the use of our barrels in Niagara wine production.

Method
Canadian oak has certain desirable characteristics, and is the same species as the popular American oak, Quercus alba. Experiments began in 1999 which involved several Ontario wineries maturing their wines in Canadian oak.

Results
The wines are currently maturing in barrel at the Niagara College Teaching Winery. The GC-MS tests and sensory comparisons will take place over the course of 2008.

Conclusion
The barrel trial is still in its beginning stages. The wines need to be stored for a longer period to see the effects of maturation, chemically and organoleptically. Regular barrel maintenance practices are performed as needed.

Acknowledgements
Thank you to Niagara Research; the OCE; Dr. Jim Hedges, Canadian Oak Cooperage; Dr. Isabelle Leschansky and Erika Neudorf, Brock University; Dr. George van der Merwe, the University of Guelph.
**Introduction**

First...

Check with conference organizers on their specifications of size and orientation, before you start your poster eg. maximum poster size; landscape, portrait or square.

The page size of this poster template is 48” x 36” landscape (horizontal) format. Do not change this page size, ANRCS can scale-to-fit a smaller or larger size, when printing. If you need a different shape start with either a portrait (vertical) or a square poster template.

Bear in mind you do not need to fill up the whole space allocated by some conference organizers (eg. 8ftx4ft in the USA). Do not make your poster bigger than necessary, just to fill that given size.

**Method**

Tips for making a successful poster...

- Re-write your paper into poster format i.e..
- Simplify everything, avoid data overkill.
- Headings of more than 6 words should be in upper and lower case, not all capitals.
- Never do whole sentences in capitals or underline to stress your point, use **bold** characters instead.
- When laying out your poster leave breathing space around your text. Don’t overcrowd your poster.
- Try using photographs or colored graphs. Avoid long numerical tables.
- Spell check and get someone else to proof-read.

- Captions to be set in Times or Times New Roman or equivalent, italic, between 18 and 24 points.
- Left aligned if it refers to a figure on its left. Caption starts right at the top edge of the picture (graph or photo).

**Results**

Importing / inserting files...

Images such as photographs, graphs, diagrams, logos, etc, can be added to the poster.

To insert scanned images into your poster, go through the menus as follows: Insert / Picture / From File… then find the file on your computer, select it, and press OK.

The best type of image files to insert are JPEG or TIFF. JPEG is the preferred format.

Be aware of the image size you are importing. The average color photo (5 x 7 inches at 180dpi) would be about 3Mb (1Mb for B/W greyscale).

Do **not** use images from the web.

Notes about graphs...

For simple graphs use MS Excel, or do the graph directly in PowerPoint.

Graphs done in a scientific graphing programs (eg. Sigma Plot, Prism, SPSS, Statistica) should be saved as JPEG or TIFF if possible.

**Conclusion**

**Acknowledgements**
Effective Presentations

Tips on presenting an **oral report** include:

- Identify and analyze your audience – knowledge of subject, interest, potential bias, knowledge of you
- Plan your presentation – use visuals, powerpoints, posters, other tools to assist
- Follow general components of posters
- Practise – for content, timing, stance, voice, practise on location if possible
- Develop strategies for handling questions – when? Who answers from the team?
Effective Presentations

List possible questions for your presentation.